The Japanese Dragonfly-Fauna of the Family *Libellulidae.*

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(With Plate 2.)

Concerning our fundamental knowledge of the Japanese fauna of dragonflies, we owe to the works of De Selys-Longchamps. His first work appeared some thirty years ago under the title „Les Odonates du Japon“ [1]; in this monographic list the author enumerates 67 species, of which 27 are represented by *Libellulidae.* This publication was followed by a second paper entitled „Les Odonates recueillis aux îles Loo-Choo“ [2], in which 10 additional species are described, and of these 6 are *Libellulidae.* Needham, Williamson, and Foerster published some studies on Japanese dragonflies in several papers. Quite recently Prof. Matsumura [3] describes the dragonflies from Saghalin together with other insects occuring on that island. An elaborate work on *Libellulidae* is in the course of publication [4], by which our knowledge on this fauna is widely extended, though I find that many species of this family are yet spared in this work.

So far as I am aware, in these works are represented those Japanese dragonflies which are hitherto known. They are 48 species in number.

At present our empire is greatly added in its area, so that it is extended from the high parallel of 50° north to the tropic cancer, containing those various parts of locality which are almost not yet explored. Among others this circumstance causes me to undertake a renewed work of this insect-fauna of this vast extention of land with varied climates. The present paper is embodied of the results so far as obtained from the study of dragonflies with which I have worked during four years past. I take in this paper 22 additional species, of which 9 are evidently new to science. Besides I have established one new genus and two new subspecies. Of the 48 species known from Japan there are those which I could not obtain the specimens of the following 7: *Zyxomma petiolatum, Leucorrhinia rubicunda, Leucorrhinia orientalis, Trithemis aurora, Sympetrum commixtum, Sympetrum Kunckeli* and *Sympetrum cordulegaster.*

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[1]) Ann. Soc. Ent. Belg. XXVII. 1883.
[2]) Comp. rend. Soc. Ent. Belg. 1888.
[3]) Jour. Col. Agr. Tohok. Imp. Univ. Sapporo 1911.
[4]) Coll. d. Selys-Longchamp. 1906—1913.

Next I give a brief account on the distribution of the *Libellulidae* in Japan. The 72 species, viz. 50 known and 22 new, can be divided into two regional groups: the Palaearctic or northern species and the Oriental or southern species. The former occur in the northern part of Japan viz. northwards from Kiushiu, showing connexion with the fauna of the northern Asiatic continent, while the latter are restricted in their occurence to the Loo-Choo group, holding very intimate relation to the fauna of Indo-Malayan region and of Australian region. At Okinawa and Kiushiu both the northern and southern species overlap each-other to some extent.

The strait of Tsugaru, which is known as Blakiston's line, acts no powerful barrier on the distribution of *Libellulidae,* since the same species are very often found on both sides of strait. In this respect Hokkaido is connected also with Saghalin. Further no distinction is between the fauna of Siberia and that of Saghalin.

Descriptions of a new Genus, Species and Subspecies.

Rhyiothemis nebulosa sp. nov.

Abdomen 21 mm; hind wing 31 mm; pterostigma 2 mm.

Male. Head: black with violet reflection above and a yellowish streak at the base of clypeus.

Thorax: black with greenish reflection. Wings rather narrow, brown, with weak reflection of violet and with a hyaline transverse band at the distal part of nodus dividing a wing into two colored parts, but in the hind wing this hyaline band separates itself by the middle constriction in two speaks of irregular shape. All of the hyaline parts with their borders not sharply defined from the colored parts. Nervures and pterostigma brown. Legs fuscous.

Abdomen: black; upper anal appendages nearly as long as the 9th segment, distal portion considerably thickened and truncated terminally; lower appendage nearly four fifths of the upper.

Female: unknown.

Nom. Jap.: Kumogata-cho-tombo.

Loc.: Loo-Choo (Uchida).

Sympetrum gracile sp. nov. (Pl. II, Fig. 1—4.)

Abdomen ♂ 20 mm, ♀ 22 mm; hind wing ♂ 24 mm, ♀ 27 mm; pterostigma ♂♀ 2 mm.

Male. Head: frontal tubercle and the basal part of frons metallic black; face white, being often somewhat yellowish, finely haired, with a black patch on frons; labrum and labium pale yellow.

Thorax: black, densely pruinosed with bluish grey, without color patterns; wings hyaline, nervures fine and blackish, pterostigma moderate in length and blackish in color; fore wing with 8 and hind wing with 6 antenodals; legs slender, long, black in color, only the coxa, trochanter and the inner part of femur in the first and second pair yellowish.

Abdomen: likely colored as thorax, also pruinosed, very slender, only thickened at the base, segments 7 and 8 being more or less broader. Upper anal appendages scarcely longer than the terminal 2 segments, slender, curved gradually upwards at the tips, black, but the base brownish, poorly haired; lower appendage nearly so long as the upper, brown with black tip; genital hamules as shown in the figure.

Female. Head: very similar to that of male.

Thorax: yellow, somewhat pruinosed on the sterna; with black bands and streaks arranged as follows: a broad one on the frontal suture of mesothorax, the next narrower one runs from just below the scapula to the coxa of the second leg, third ones, being the narrowest, on the two lateral sutures.

Abdomen: moderately slender, orangy on dorsal side and yellowish on lateral, while darky on ventral surface; median dorsal and transverse carinae black. On segments 2—7 with black transverse band on posterior margin and a longitudinal marking of the same color on each side, by the latter markings the orangy dorsal part separates itself from yellowish lateral part; segment 8 nearly whole, and 9 and 10 entirely black; no prominent vulvar scale present.

Nom. Jap.: Naniwa-tombo.
Loc.: Furumachi (Arimoto), Wakayama (Isshiki), Osaka (Shibakawa).

This species shows some resemblance to *Diplacodes trivialis* in its coloration; but the structure of the wing is different from the latter. By the extremely slender form of abdomen it will sharply be distinguished from any other species of this genus. It occurs according to Mr. Shibakawa always near the ponds, being never found in any other parts as fields or forests, where the other species of this genus are so frequently met with.

Sympetrum maculatum sp. nov. (Pl. II, Fig. 5, 6.)

Abdomen 21 mm; hind wing 25 mm; pterostigma 2,3 mm.

Male. Head: tolerably large; frontal tubercle yellowish above, smoky below; face haired, deep chrom-yellow with a large, shining black patch on frons, it is quadrate in shape and melts

proximally into the basal blackline on vertex; the margins of clypeus and labrum as well as the labial lobes smoky.

Thorax: light yellow with streaks of black color like the case of female of the preceeding species, but the yellow part between the frontal and the first lateral black streaks very widened below the scapula; wings hyaline, basal area slightly tinged, nervures smoky brown; pterostigma brown; legs black except all the coxae and trochanters and a small part of femur in the first leg.

Abdomen: slender, showing some resembling shape to the preceeding species, but very different in coloration; all the segments black, only the basal ones being somewhat brownish and with yellow patterns as follows: a streak on the hind margin of the first segment; on the second segment a similar streak at the middle, and a pair of small elongated spots near the hind margin, the larger part of the side mostly yellow though being crossed by an oblique black streak; on the third segment the part proximal to the carina yellow and at side this yellow part being shortly surpassed the carina distally, segments 4^{th} to 8^{th} with a pair of small triangular yellow dots at the proximal end of each segment, segment 9 and 10 entirely black; upper anal appendages nearly so long as the 9^{th} segment and the lower appendage slightly shorter than the upper, both of them yellowish, but smoky in their distal halves.

Female: unknown.

Nom. Jap.: Madara-naniwa-tombo.

Loc.: Kii (Honshiu, Isshiki).

The specimen of this delicately formed species came in my hand by the kindness of Mr. Isshiki from Kii; the preceeding species is also known to me from that locality. Unfortunately the specimen is the male which is dated 1907, and the preservation is not so good that I could scarcely examine the details of genital organ. The size and form is very like *S. gracile,* but the coloration of the body shows resemblance to it.

Sympetrum eroticoides sp. nov. (Pl. II, Fig. 12.)

Abdomen 22—23 mm; hind wing 22—25 mm; pterostigma 2—2,5 mm.

Female. Closely allied to *S. erotica,* but much smaller in size and easily distinguished by the following points.

1. The frontal black dots very faint.

2. The vulvar scale intensively prolonged, far surpassing the tips of the anal appendages, tapered towards the tip and with a notch at the extremity which is not so deep.

This species presents at the same time a near relation to *S. Kunckeli,* but the structure of the vulvar scale is very different from that of *Kunckeli.* Judging from the data above mentioned I regard this insect as a quite distinct species and make it known by the name above given. The question remains still open, untill the male is obtained.

Three female specimens were examined in the late autumn of this year by the author in the collection of Mr. Shibakawa.

Planiplax okinavensis sp. nov. (Pl. II, Fig. 7.)

Abdomen 24 mm; hind wing 30 mm; pterostigma 3 mm.

Male. Head: frons, frontal tubercle, free margin of labrum and occiput, metallic green; the remaining parts yellow.

Thorax: blackish, with a pair of long-quadrate patches of gray color on front, and two yellow broad bands on each side, one of them runs from the base of the fore wing to the second coxa and the other on the metepimeron; legs short, stout, black in color. Wings rather narrow, hyaline, the basal part saffron yellow, nervures black, pterostigma moderately long and brownish yellow in color. Fore wing with 7 continuous antenodals and 6 postnodals, the first two of the latter not continuous; triangle broad with a cross nervure, the distal side nearly perpendicular to M_4; discoidal field contains two rows of cells for five cells length. Hind wing not remarkably broader than the fore wing, having equal breadth throughout the length, with 6 antenodals and 7 postnodals, the first two of the latter not continuous; triangle free, the distal side stouter than the other sides, followed by one row of cells for two cells length; all the nervures that branching from Cu in the basal area run perpendicularly to the wing axis.

Abdomen: moderately stout, tapered gradually towards the tip, segments 2 and 3 carinated; color black with a pair of yellow markings at the proximal end of segments 2, 3 and 4; upper anal appendages shorter than the segment 9 while the lower appendage being a little shorter than the upper.

Female: unknown.

Nom. Jap.: Okinawa-tombo.

Loc.: Okinawa (Loo-Choo, Uchida).

The above description is yielded from a single male specimen. It is very interesting fact to find such a species belonging to the genus *Planiplax* in Japanese empire.

Deielia phaon brevistigma subsp. nov.

Abdomen ♂ 23—25 mm, ♀ 25 mm; hind wing ♂ 27—29 mm, ♀ 30 mm; pterostigma ♂♀ 3 mm.

Male. Color and form very similar to the typical form of *phaon*, but the size much smaller and pterostigma far shorter than that of the type.

Female. Color and form like that of *dispar* form of *phaon*, but the wing without brown transverse bands near the pterostigma.

Nom. Jap.: Hime-kofuki-tombo.

Loc.: Formosa (Matsumura).

Three males and one female came under my notice. The female may sometimes be of an aberrant nature as the *dispar* form against the typical *phaon*, and subsequently the typically formed female of the present subspecies may have the similar coloration to that of the male. The decision of the matter will be postponed in further investigations.

Lyriothemis flava sp. nov.

Abdomen ♂ 31 mm, ♀ 32 mm; hind wing ♂ 36 mm, ♀ 37 mm; pterostigma ♂♀ 37 mm.

Male. Head: frontal tubercle metallic green, the remaining parts bright yellow, except the middle lobe of labium that is black.

Thorax: yellow, with two broad black bands on the side, one of them runs from just behind scapula to the second coxa and the other along the second lateral suture; the frontal part, or the part between the first pair of these bands being darker. Wings faintly colored with brown; nervures black; pterostigma long and blackish.

Abdomen: very broad, like that of *L. elegantissima*, bright orange-yellow, a median dorsal carina and the last two segments black, though being paler towards the center of the segment; genital hamules very conspicuous, quadrilateral in shape; upper anal appendages stout, as long as the 9th segment, black, on the ventral side with 5 or 6 teeth near the tip; lower appendage nearly the same in length with the upper, yellow, margined with black.

Female. Very like the male in coloration and in form, especially in head and thorax. Wings much darker, abdomen scarcely tapered at least up to the 8th segment, the black streaks on the dorsal carinae broader than in the male. Vulvar scale small, bilobed, either one of the lobes somewhat lunar shaped.

Nom. Jap.: Kiiro-harabira-tombo.

Loc.: Formosa (Matsumura).

As to be seen from the above descriptions this species has a close resemblance to *L. magnificata*, which has been known from Malacca, especially in the structure of the genital hamules. The following points, however, will deserve for the distinction of the two.

I. The middle lobe of labium black, while in *magnificata* yellow.

II. Cu_1 and Cu_2 strongly curved in the hind wing, their ends not reaching the level of nodus, while in *magnificata* always reaching or surpassing the nodus.

III. Discoidal field of the fore wing contains three rows of cells, while in *magnificata* it contains two rows of cells for some length.

IV. Thorax has broad bands.

V. Body is bright yellow, but reddish in *magnificata*.

Neothemis gen. nov.

Type: *Neothemis insularis* sp. nov.

Head large, frontal tubercle bifid; thorax small and short; abdomen rather slender, but the basal segments thickened and then gradually tapered to extremity, not depressed; genital hamules very conspicuously projected; segment 8 of the female not perfoliated. Wings long and narrow, M_{1-3} and M_4 in common stalk for some length. Fore wing with 12—16 antenodals and 11—13 postnodals, the first three of the latter not continuous; M_2 and Rs slightly waved in the middle; triangle traversed by one sometimes by two nervures, followed by three rows of cells; supra subtriangle with one cross nervure and subtriangle generally consists of three cells; three to four cross nervures in cubital space. Hind wing not considerably broader than the fore wing, with 10—12 antenodals and 11—12 postnodals; triangle traversed by one cross nervure, supratriangle free and cubital space with 3 or 4 cross nervures; pterostigma moderably long. Legs short and stout.

The venational characters resemble to that of some species of *Lyriothemis*, but in the shape of abdomen this genus is widely apart from it. The abdomen equilateral in its cross section, assuming a triangular prism, and in female there is no perfoliation on the 8th segment. Beside these, the head is remarkably large as compared with thorax, having nearly half the length of the latter, but much wider.

Neothemis insularis sp. nov. (Pl. II, Fig. 8—11.)

Abdomen ♂ 22—26 mm, ♀ 25—27 mm; hind wing ♂ 29 to 32 mm, ♀ 32—35 mm; pterostigma ♂♀ 2,5 mm.

Head: frontal tubercle and frons above metallic blue, with black hairs; face white or grayish white in males and black in females; labium yellowish, only the inner margins of lobes black.

Thorax: black, scapulae and an elongated marking on shoulder yellow, in some individuals more one or two small roundish patches near the front; legs short and black; wings narrow, transparent, sometimes slightly tinged.

Abdomen: beautiful carmine red in the male, while reddish yellow in the female; segments 1, 8, 9 and 10 as well as the under surface black; in the male, the posterior one fifth of the 7th segment also black, upper anal appendages are waved and thickened at tips, lower appendages a little shorter than the upper, both black and hairy; in the female vulvar scale very small, bilobed into semilunar halves.

Nom. Jap.: Shima-akane.

Loc.: Bonin Islands (Matsumura).

The feature of the present species is surely to be recognized as having an affinity to some species of *Agrionoptera*, though widely apart from it in the structure of wings. Yet the genus *Neothemis* certainly has a close relation to *Agrionoptera*, consequently it should be placed near the latter in the systematic arrangement.

Hemicordulia ogasawarensis sp. nov.

Abdomen 30—31 mm; hind wing 30—31 mm; pterostigma 1,8 mm.

Male. Head: frontal tubercle and frons metallic blue; face yellow, densely haired.

Thorax: bright metallic green, reflecting some coppery luster, without any markings on the sides; wings transparent or pale brown, a small yellowish patch at the base of the hind wing, which extends to cubito-anal cross nervure; membranule brown; pterostigma short, deep brownish black; legs mostly black, only coxa, trochanter and the larger part of femur in the first and second pairs yellowish.

Abdomen: slender, the basal two segments swollen like a globule, the 4th the narrowest, from 5th to 8th becoming broader; deep bluish or somewhat greenish bronzy in color, a small spot on each side of the second segment and a transverse band on the posterior margin of the first segment yellow, the lateral ridges of the third segment pale yellowish white, the other segments without patterns; upper anal appendages longer than the last two segments, the basal one fifth slender and the rest moderately stout, bent gradually downwards and inwards, terminated in blunt tips; lower appendages long, a little shorter than the upper.

Female: unknown.

Nom. Jap.: Ogasawara-tombo.

Loc.: Bonin Islands (Matsumura).

Two male specimens were examined. This species seems to me to have a near relation to *Hemicordulia assimilis* from Celebes, especially in the shape of the anal appendages, but the present *ogasawarensis* has a monotonous coloration or no such color patterns

on abdomen as we see in *assimilis*, and the pterostigma being much longer than that of *assimilis*.

Somatochlora borealis Bartenef.

When Bartenef described [1]) *S. borealis*, the male specimen was unknown to him. Prof. Matsumura [2]) regards the species to be identical with *S. Graeseri*. According to my present result, *S. Graeseri* is the male of *S. borealis* Bartenef, as the following short description of the male *borealis* shows.

Male. Head and thorax metallic bluish green, haired densely. Wings transparent, anal triangle of the hind wing slightly yellow; the most part of membranule, nervures and pterostigma dark brown; legs black. Abdomen scarcely shining blackish blue; a small triangular patch on the side of the second segment and a fine yellow streak on the anterior margin of the third segment, at the posterior to the latter more one triangular marking is found but very faint. The projection of the second segment short, blunt tipped, directed posteriory. Upper anal appendages black, nearly so long as the last two segments, gently curved, with the narrow basal part where a tooth on the ventral side, swollen in the middle and tapered towards tips which strongly reflected upwards. Lower anal appendages two thirds the length of the upper.

Somatochlora borealis aureola subsp. nov.

Abdomen ♂ 34—35 mm, ♀ 34—36 mm; hind wing ♂ 33 to 35 mm, ♀ 36—37 mm; pterostigma ♂ 2 mm, ♀ 2,2 mm.

By the following points this subspecies differs from the type.

Male. I. Wings deep saffron yellow at the base up to the triangle.

II. Yellow markings on the second abdominal segment much larger, in some individuals roundish in form.

III. On the anterior margin of the same segment with a large yellow marking, that is very faint in the type, prolonged to the back along the margin.

Female. I. The saffron part of the wing extends like the male up to the triangle and is very brilliant.

II. On the third segment the yellow marking more conspicuous than in the male, its dorsal end converted into a large triangular form with an apex directing the posterior end of body.

Nom. Jap.: Kibane-mori-tombo.

Loc.: Hokkaido.

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[1]) Zool. Anz. XXXV. p. 22 (1910).

[2]) Jour. Col. Agr. Tohoku Imp. Univ. Sapporo IV. p. 10 (1911).

The most conspicuous point, by which the present subspecies is distinguished from the other, is the splendid color of the wing base especially that in the female specimens, and the next is the yellow marking on the third segment of abdomen.

Somatochlora clavata sp. nov.

Abdomen 37—39 mm; hind wing 40—41 mm; pterostigma 2,5—3 mm.

Closely allied to *S. viridiaenea*, but is distinguished as follows:

Male. I. The last epimeron with an elongated yellow marking.

II. Hind wing very broad at the base; at the middle part of the wing it measures 11 mm while at the part of anal angle the breadth shows 13 mm. Anal loop much well developed and the part near it is suffused by pale yellow.

III. Legs black, only coxa, trochanter of the first pair yellow.

IV. Abdomen destitute of any patterns except the first 4 segments; the projection of the second segment more conspicuous, with no yellow part, and directing the tip downwards; the posterior half of the third segment very narrow, while the segments 6—8 become considerably stout, so as to form a clavate shape.

V. Upper anal appendages rather short, stout, the basal spine shorter than that of *viridiaenea*; lower appendages two thirds the length of the upper.

Female: unknown.

Nom.: Jap. Hiroba-yezo-tombo.

Loc.: Hokkaido.

Examined two male specimens collected in Sapporo by the author.

The List of the Japanese *Libellulidae*.

Family *Libellulidae*.

Subfamily *Libellulinae*.

1. *Tholymis tillarga* Fabricius. Ent. Syst. Suppl. p. 285 (1798).
   Nom. Jap.: Ameiro-tombo.
   Dist.: Formosa (Taihanroku, Tainan); Kamerun, Tibet, Borneo, Celebes, Philippines, Queensland etc.
2. *Zyxomma petiolatum* Rambur. Ins. Nevr. p. 30 (1842).
   Nom. Jap.: Haraboso-tombo.
   Dist.: Loo-Choo (Pryer); Jva, Borneo, Cape York.
3. *Zyxomma obtusum* Selys. Mitt. Mus. Dresd. p. 293 (1878).
   Nom. Jap.: Kofuki-haraboso-tombo.
   Dist.: Loo-Choo (Okinawa, Uchida); Celebes, Lomboc, Sumatra.

4. *Pantala flavescens* Fabricius. Ent. Syst. Suppl. p. 285 (1798).
   Nom. Jap.: Usuba-ki-tombo.
   Dist.: Japan (from Saghalin to Formosa); China, Borneo, Celebes, Philippines, Madagascar.
5. *Tramea chinensis* De Geer. Mem. Ins. III. p. 556. f. 1 (1773).
   Nom. Jap.: O-usuba-ki-tombo.
   Dist.: Kiushiu, Loo-Choo, Formosa; China.
6. *Rhyothemis fuliginosa* Hagen. Ann. Ent. Soc. Belg. XXVII. p. 88 (1883).
   Nom. Jap.: Cho-tombo.
   Dist.: Honshiu, Shikoku, Kiushiu.
7. *Rhyothemis Severini* Ris. Coll. Zool. d. Selys, Libell. p. 948 (1913).
   Nom. Jap.: Hanenaga-cho-tombo.
   Dist.: Formosa (Matsumura); Indochina.
8. *Rhyothemis nebulosa* Oguma sp. nov.
   Nom. Jap.: Kumogata-cho-tombo.
   Dist.: Loo-Choo (Uchida).
9. *Rhyothemis variegata* Linneus. Syst. Nat. I. p. 412 (1767).
   a) *Rhyothemis variegata imperatrix* Selys.
      Nom. Jap.: Bekko-cho-tombo.
      Dist.: Loo-Choo (Okinawa, Yayeyama), Formosa (Taihoku).
   b) *Rhyothemis variegata arrisa* Drury. Ill. Ex. Ins. p. 84 (1773).
      Nom. Jap.: Taiwan-bekko-cho-tombo.
      Dist.: Formosa; Tonkin, Kanton.
10. *Zygonyx iris* Selys. Ann. Soc. Ent. Belg. p. 97 (1869).
    Nom. Jap.: Takasago-tombo.
    Dist.: Formosa (Suzuki); Tonkin. Hainan, Sarawak, Borneo.
11. *Trithemis pallidinervis* Kirby. Trans. Zool. Soc. Lond. XII. p. 327 (1889).
    Nom. Jap.: Beni-tombo.
    Dist.: Formosa (Takao, Taihanroku); Tibet, Ceylon, India.
12. *Trithemis aurora* Burmeister. Handb. Ent. II. p. 859 (1839).
    Nom. Jap.:
    Dist.: Formosa; Tonkin, India, Celebes, Java, Honkong, Philippines, Sumatra.
13. *Tritheis festiva* Rambur. Ins. Nevr. p. 92 (1842).
    Nom. Jap.: Seboshi-tombo.
    Dist.: Formosa; Penang, India, Ceylon, Lombock, Sumatra.
14. *Pseudothemis zonata* Burmeister. Handb. Ent. II. p. 859 (1839).
    Nom. Jap.: Koshiaki-tombo.
    Dist.: Honshiu, Shikoku, Kiushiu, Formosa, Loo-Choo; China.
15. *Leucorrhinia orientalis* Selys. Ann. Soc. Ent. Belg. XXXI. 237 (1887).
    Nom. Jap.: Riukiu-kaojiro-tombo.
    Dist.: Loo-Choo (Selys).

16. *Leucorrhinia rubicunda* Linneus. Syst. Nat. I. p. 543 (1758).
Nom. Jap.: Kaojiro-aka-tombo.
Dist.: Japan (McLachlan); Europe.
17. *Leucorrhinia dubia* Linden. Mon. Lib. p. 16 (1825).
Nom. Jap.: Kaojiro-tombo.
Dist.: Saghalin, Hokkaido, Honshiu (Takeda, Shibakawa); Siberia, Europe.
18. *Sympetrum danae* Sulzer. Abgekürzte Geschichte usw. p. 169 (1776).
= *Sympetrum scoticum* Donovan.
Nom. Jap.: Mutsu-akane.
Dist.: Honshiu (Yumoto?, Aomori); Amur, Europe, Colorado.
19. *Sympetrum pedemontanum* Allioni. Mel. Soc. Tur. III. p. 194 (1766).
Dist.: Japan, Siberia, Europe.
a) *Sympetrum pedemontanum pedemontanum* Allioni.
Nom. Jap.: Yezo-miyama-akane.
Dist.: Hokkaido; Amur, Europe.
b) *Sympetrum pedemontanum elatum* Selys. Ann. Soc. Ent. Belg. XV. p. 27 (1872).
Nom. Jap.: Miyama-akane.
Dist.: Honshiu, Shikoku, Kiushiu; Corea.
20. *Sympetrum flaveolum* Linneus. Syst. Nat. I. p. 543 (1758).
Nom. Jap.: Yezo-akane.
Dist.: Saghalin, Hokkaido; Amur, Manchuria, Europe.
21. *Sympetrum commixtum* Selys. Ann. Soc. Ent. Belg. XXVIII. p. 38 (1884).
Nom. Jap.: Tsushima-akane.
Dist.: Tsushima; North India.
22. *Sympetrum imitans* Selys. Comp. rend. Soc. Ent. Belg. XXXI. p. 51 (1887).
= *Sympetrum vulgatum* Linneus.
Nom. Jap.: Iso-akane.
Dist.: Saghalin (Oguma); Peking, Amur, Europe.
23. *Sympetrum frequens* Selys. Ann. Soc. Ent. Belg. XXVII. p. 93 (1883).
Nom. Jap.: Aki-akane.
Dist.: Japan (from Hokkaido to Kiushiu); Corea.
24. *Sympetrum darwinianum* Selys. Ann. Soc. Ent. Belg. XXVII. p. 94 (1883).
= *Sympetrum sinensis* Selys.
Nom. Jap.: Natsu-akane.
Dist.: West Honshiu, Kiushiu; Central China.
25. *Sympetrum baccha* Selys. Ann. Soc. Ent. Belg. XXVIII. p. 40 (1884).
Nom. Jap.: O-akane.
Dist.: Formosa; South China.

26. *Sympetrum infuscatum* Selys. Ann. Soc. Ent. Belg. XXVII. p. 90 (1883).
Nom. Jap.: Noshime-tombo.
Dist.: Japan (from Hokkaido to Kiushiu).

27. *Sympetrum matutinum* Ris. Coll. Zool. d. Selys, Libell. p. 660 (1912).
Nom. Jap.: Ko-noahime-tombo.
Dist.: Honshiu (Oiwake, Pryer), Kiushiu (Nagasaki, Fruhstorfer); Corea.

28. *Sympetrum eroticum* Selys. Ann. Soc. Ent. Belg. XXVII. p. 90 (1883).
Dist.: Japan, Corea, China.

a) *Sympetrum eroticum eroticum* Selys.
Nom.: Jap. Mayutate-akane.
Dist.: Japan (from Hokkaido to Kiushiu); Corea, China (Shanghai).

b) *Sympetrum eroticum ardens* Mc Lachlan. Ann. Mag. Nat. Hist. 13. p. 429 (1894).
Nom. Jap.: O-mayutate-akane.
Dist.: Formosa; Central China.

29. *Sympetrum eroticoides* Oguma sp. nov.
Nom. Jap.: Hime-mayutate-akane.
Dist.: Honshiu (Osaka, Shibakawa).

30. *Sympetrum Kunckeli* Selys. Ann. Soc. Ent. Belg. XXVIII. p. 39 (1884).
Nom. Jap.: Ko-mayutate-akane.
Dist.: Honshiu (Osaka); China (Shanghai etc.).

31. *Sympetrum corduleyaster* Selys. Ann. Soc. Ent. Belg. XXVII. p. 139 (1883).
Nom. Jap.: Amur-mayutate-akane.
Dist.: Japan; Amur.

32. *Sympetrum arcticum* Matsumura. Jour. Coll. Agr. Tohoku Imp. Univ. Sapporo IV. p. 7 (1911).
Nom. Jap.: Kita-akane.
Dist.: Saghalin (Oguma), Hokkaido (Komura).

33. *Sympetrum gracile* Oguma sp. nov.
Nom. Jap.: Naniwa-tombo.
Dist.: Honshiu (Furumachi, Arimoto; Osaka, Isshiki and Shibakawa).

34. *Sympetrum maculatum* Oguma sp. nov.
Nom. Jap.: Madara-naniwa-tombo.
Dist.: Honshiu (Kii, Isshiki).

35. *Sympetrum uniforme* Selys. Ann. Soc. Ent. Belg. XXVII. p. 92 (1883).
Nom. Jap.: O-kitombo.
Dist.: Honshiu, Kiushiu.

36. *Sympetrum croceolum* Selys. Ann. Soc. Ent. Belg. XXVII. p. 94 (1883).
Nom. Jap.: Kitombo.
Dist.: Hokkaido (very rare), Honshiu, Shikoku, Kiushiu.
37. *Diplacodes trivialis* Rambur. Ins. Nevr. p. 115 (1842).
Nom. Jap.: Hime-tombo.
Dist.: Honshiu (Takanoshima, Uhler), Loo-Choo, Formosa; Malay Archipelago.
38. *Diplacodes bipunctata* Brauer. Verh. zool.-bot. Ges. Wien, XV. p. 503 (1865).
Nom. Jap.: Beni-himetombo.
Dist.: Bonin Islands (Matsumura); Sidney, Australia, Tahiti, Borneo, Celebes.
39. *Brachythemis contaminata* Fabricius. Ent. Syst. p. 382 (1793).
Nom. Jap.: Hime-kitombo.
Dist.: Formosa; Ceylon, India, Tibet, Amoy.
40. *Neurothemis fluctuans* Fabricius. Ent. Syst. p. 379 (1793).
Nom. Jap.: Akasuji-cho-tombo.
Dist.: Formosa; Penang, Burma, Borneo.
41. *Neurothemis tullia* Drury. Ill. Ex. Ent. II. t. 46. f. 3 (1773).
Nom. Jap.: Osuguro-cho-tombo.
Dist.: Formosa; Hongkong, Penang, Siam, India, Tibet.
42. *Planiplax okinawensis* Oguma sp. nov.
Nom. Jap.: Okinawa-tombo.
Dist.: Loo-Choo (Uchida).
43. *Deielia phaon* Selys. Ann. Soc. Ent. Belg. XXVII. p. 88 (1883).
Dist.: Japan, Formosa, Sandwich Islands.
a) *Deielia phaon phaon* Selys.
Nom. Jap.: Kofuki-tombo (normal form).
Obi-tombo (dispar-form of female).
Dist.: Honshiu, Kiushiu, Loo-Choo.
b) *Deielia phaon brevistigma* Oguma subsp. nov.
Nom. Jap.: Hime-kofuki-tombo.
Dist.: Formosa.
44. *Crocothemis servilia* Drury. Ill. Ex. Ent. I. t. 47. f. 6 (1773).
Nom. Jap.: Shojo-tombo.
Dist.: Honshiu, Shikoku, Kiushiu, Loo-Choo, Formosa; South China; Ceylon, Java, Sumatra, Borneo etc.
45. *Potamarcha obscura* Rambur. Ins. Nev. p. 64 (1842).
Nom. Jap.: Taiwan-tombo.
Dist.: Formosa (Matsumura, Sauter); Tibet, Singapore, Java, Lomboc, Celebes, Lucon.
46. *Lyriothemis pachygastra* Selys. Mitt. Mus. Dresd. (1878).
= *Lyriothemis Lewisi* Selys.

Nom. Jap.: Harabiro-tombo.
Dist.: Honshiu (Aomori, Sendai, Gifu, Takasago etc.), Kiushiu; Corea, China.

47. *Lyriothemis elegantissima* Selys. Ann. Soc. Ent. Belg. XXVII. p. 142 (1883).
Nom. Jap.: O-harabiro-tombo.
Dist.: Loo-Choo; China.

48. *Lyriothemis flava* Oguma sp. nov.
Nom. Jap.: Kiiro-harabiro-tombo.
Dist.: Formosa (Matsumura).

49. *Neothemis insularis* Oguma gen. nov. sp. nov.
Nom. Jap.: Shima-tombo.
Dist.: Bonin Islands (Matsumura).

50. *Agrionoptera insignis* Rambur. Ins. Nevr. p. 123 (1842).
Nom. Jap.: Hoso-aka-tombo.
Dist.: Loo-Choo; Philippines, Celebes.

51. *Orthetrum sabina* Drury. Ill. Ex. Ins. I. t. 48. f. 4 (1773).
Nom. Jap.: Haraboso-tombo.
Dist.: Kiushiu (Beppu, Shibakawa), Loo-Choo; Formosa; China, India, Singapore, Ceylon, Philippines, Borneo, Java, Sumatra, Sidney.

52. *Orthetrum albistylum* Selys. Rev. Zool. p. 15 (1848).
a) *Orthetrum albistylum albistylum* Selys.
Nom. Jap.: Yezo-no-shiokara-tombo.
Dist.: Hokkaido; Europe.
b) *Orthetrum albistylum speciosum* Uhler. Proc. Acad. Philad. p. 80 (1858).
Nom. Jap.: Shiokara-tombo (Male), Mugiwara-tombo (Female).
Dist.: Honshiu, Shikoku, Kiushiu, Formosa; Honkong, China.

53. *Orthetrum japonicum* Uhler. l. c. p. 29 (1858).
Nom. Jap.: Shioya-tombo.
Dist.: Japan (from Hokkaido to Kiushiu); South China.

54. *Orthetrum cancellatum* Linneus. Syst. Nat. I. p. 544 (1758).
Nom. Jap.: Chairo-tombo.
Dist.: Formosa (Matsumura); Persia, Cicili.

55. *Orthetrum triangulare* Selys. Mitt. Mus. Dresd. p. 314 (1878).
a) *Orthetrum triangulare triangulare* Selys.
Nom. Jap.: Taiwan-o-shiokara-tombo.
Dist.: Formosa (Matsumura); India, Ceylon, Nepal, Singapore.
b) *Orthetrum triangulare melania* Selys. Ann. Soc. Ent. Belg. XXVII. p. 103 (1883).

Nom. Jap.: O-shiokara-tombo.
Dist.: Japan (from Hokkaido to Kiushiu), Loo-Choo, Formosa.

56. *Orthetrum pruinosum* Burmeister. Handb. Ent. p. 858 (1839).
Nom. Jap.: Kofuki-shojo-tombo.
Dist.: Formosa; India, Java, Celebes, Borneo.

57. *Libellula quadrimaculata* Linneus. Syst. Nat. p. 543 (1758).
Nom. Jap.: Yotsuboshi-tombo.
Dist.: Saghalin (O g u m a), Hokkaido, Honshiu; Central Asia, Europe.

58. *Libellula angelina* Selys. Ann. Soc. Ent. Belg. XXVII. p. 99 (1883).
Nom. Jap.: Bekko-tombo.
Dist.: Honshiu (Sendai, Tokio).

59. *Acisoma panorpoides* Rambur. Ins. Nevr. p. 28 (1842).
Nom. Jap.: Koshiboso-tombo.
Dist.: Loo-Choo, Formosa; India.

60. *Nannophya pygmaea* Rambur. Ins. Nevr. p. 27 (1842).
Nom. Jap.: Hatcho-tombo.
Dist.: Honshiu, Kiushiu; Singapore, Borneo, Sumatra, Celebes.

Subfamily *Cordulinae*.

61. *Epitheca bimaculata* Charpentier. Horae Ent. p. 43 (1825).
Nom. Jap.: O-torafu-tombo.
Dist.: Hokkaido, Saghalin; Siberia, Europe.

62. *Epitheca marginata* Selys. Ann. Soc. Ent. Belg. XXVII. p. 109 (1883).
Nom. Jap.: Torafu-tombo.
Dist.: West Honshiu, Kiushiu; China.

63. *Hemicordulia ogasawarensis* Oguma sp. nov.
Nom. Jap.: Ogasawara-tombo.
Dist.: Bonin Islands (M a t s u m u r a).

64. *Cordulia aenea* Linneus. Syst. Nat. I. p. 544 (1758).
Nom. Jap.: Karakane-tombo.
Dist.: Hokkaido, Saghalin; Siberia, Europe.

65. *Somatochlora borealis* Bartenef. Zool. Anz. XXXV. p. 272 (1910).
a) *Somatochlora borealis borealis* Bartenef.
Nom. Jap.: Mori-tombo.
Dist.: Saghalin; Siberia.
b) *Somatochlora borealis aureola* Oguma subsp. nov.
Nom. Jap.: Kibane-mori-tombo.
Dist.: Hokkaido.

66. *Somatochlora Uchidai* Förster. Jhrb. Nass. Ver. Nat. Wiesb. LXII. p. 233 (1909).
Nom. Jap.: Takane-tombo.
Dist.: Hokkaido, Honshiu.

67. *Somatochlora gratiosa* Bartenef. Zool. Anz. XXXV. p. 270 (1910).
Nom. Jap.: Hosomi-mori-tombo.
Dist.: Honshiu (Nikko, Shibakawa), Hokkaido, Kurile (Iriè), Saghalin; Siberia.

68. *Somatochlora japonica* Matsumura. Jour. Col. Agr. Tohoku Imp. Univ. Sapporo IV. p. 8 (1911).
Nom. Jap.: Ko-yezo-tombo.
Dist.: Saghalin, Hokkaido.

69. *Somatochlora clavata* Oguma sp. nov.
Nom. Jap.: Hanebiro-yezo-tombo.
Dist.: Hokkaido (Oguma).

70. *Somatochlora viridiaenea* Uhler. Proc. Acad. Nat. Sc. Phil. (1858).
Nom. Jap.: Yezo-tombo.
Dist.: Saghalin, Hokkaido, Honshiu.

71. *Macromia amphigena* Selys. Bull. Acad. Belg. XXXI. p. 534 (1871).
Nom. Jap.: Ko-yama-tombo.
Dist.: Honshiu, Kiushiu.

72. *Azuma elegans* Brauer. Verh. zool.-bot. Ges. Wien, XV. p. 905 (1865).
Nom. Jap.: O-yama-tombo.
Dist.: Honshiu, Kiushiu.

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Explanation of Plate 2.

1. *Sympetrum gracile* sp. nov. (male).
2. „ „ „ „ (female).
3. Genital hamules of the same.
4. Anal appendages of the same.
5. Abdomen of *Sympetrum maculatum* sp. nov. (male).
6. Anal appendages of the same.
7. *Planiplax okinawensis* sp. nov. (male).
8. *Neothemis insularis* gen. nov. sp. nov. (male).
9. Frontal tubercle of the same.
10. Genital hamules of the same.
11. Anal appendages of the same.
12. Ventral view of the vulvar scale of *Sympetrum eroticoides* sp. nov. (female).

Note: Figs. 1, 2, 7 and 8 nearly natural size, the others highly enlarged.